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NOTES ON TWO SPECTROSCOPIC ORBITS*

(Abstract)

Observations taken in 1920 and in 1921 of Boss 3511, whose orbit was previously determined, are satisfied with a period slightly different to the earlier determination and complete agreement seems unobtainable. Similarly for the one-day binary Boss 4622 the observations of different years seem to demand slightly different periods.

W. E. HARPER.

THE SPECTRA OF THE COMPONENTS OF VISUAL DOUBLE STARS*

(Abstract)

A statistical study, recently made by the writer, of the spectra of the components of physically-connected visual double stars, the majority moderately close in angular separation, has been based upon the individual spectra of (a) pairs photographed by him with the light 1-prism spectrograph attached to the 36-inch refractor of the Lick Observatory; (b) stars observed by Dr. Adams and his colleagues at Mount Wilson; and (c) doubles classified by Miss Cannon at the Harvard Observatory. A summary of the main conclusions derived from this investigation is herewith presented.

(1) The spectrum of the secondary component of a dwarf star is generally *redder* than that of the primary, whereas the spectrum of the fainter component of a giant star is usually *bluer* than that of the brighter one. In both cases, the absolute difference in spectral class seems ordinarily to be related to the disparity in magnitude between the components, being practically zero when they are equal in luminosity, or nearly so (with a few exceptions, notably among the giant stars), and increasing on the whole as the difference in magnitude increases.

(2) With some exceptions, the spectra of the components of double stars are so related to each other that they conform to the Hertzsprung-Russell configuration of the stars plotted according to spectral class and absolute magnitude. In this arrangement the fainter component normally precedes the brighter one, regardless of whether the latter be a giant or a dwarf, in the order prescribed by Professor Russell in his theory of stellar evolution. The initial statement in conclusion (1) follows at once as the necessary consequence of this tendency.